

# MAGNESITE

**CAS number:** 546-93-0

**Synonyms:** Magnesium (II) carbonate, carbonate magnesium, carbonic acid, magnesium salt (1:1), magnesite

**Chemical formula:** MgCO<sub>3</sub>

## Workplace exposure standard (retained)

**TWA:** 10 mg/m<sup>3</sup>

**STEL:** —

**Peak limitation:** —

**Notations:** —

**IDLH:** —

**Sampling and analysis:** The recommended value is quantifiable through available sampling and analysis techniques.

## Recommendation and basis for workplace exposure standard

A TWA of 10 mg/m<sup>3</sup> is recommended to minimise irritation in exposed workers.

## Discussion and conclusions

Magnesite is used to make various grades of magnesium oxide (MgO), to produce carbon dioxide (CO<sub>2</sub>) and refractories. It is also used as a bulking compound in powder formulations, the production of antacid, as an additive to make table salt, in cosmetics and in fire-resistant and insulating materials. Magnesium (Mg) is essential to animal life with adult humans requiring two to three mg per day. Deficiency in humans results in weakness, dizziness and convulsions.

Limited available data indicates magnesite (MgCO<sub>3</sub>) has low acute, chronic and inhalation toxicity. Critical effects of exposure include nasal irritation. Gastric ulcers and bronchitis have been observed in workers following chronic exposure.

HCOTN (2003) considered there was insufficient toxicological evidence on magnesite to justify recommendation of a TWA. However, it states that the current TWA of 10 mg/m<sup>3</sup> for inhalable dust is acceptable for regulation of occupational exposure. A TWA of 10 mg/m<sup>3</sup> is recommended to be retained and is considered protective for adverse effects noted above.

## Recommendation for notations

Not classified as a carcinogen according to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Not classified as a skin sensitiser or respiratory sensitiser according to the GHS.

There are insufficient data to recommend a skin notation.

## APPENDIX

### Primary sources with reports

Source	Year set	Standard
<b>SWA</b>	<b>1991</b>	<b>TWA: 10 mg/m<sup>3</sup></b>
<b>ACGIH</b>	<b>NA</b>	<b>NA</b>
No report.		
<b>DFG</b>	<b>NA</b>	<b>NA</b>
No report.		
<b>SCOEL</b>	<b>NA</b>	<b>NA</b>
No report.		
<b>OARS/AIHA</b>	<b>NA</b>	<b>NA</b>
No report.		
<b>HCOTN</b>	<b>2003</b>	<b>TWA: 10 mg/m<sup>3</sup></b>
<p>Toxicological database on MgCO<sub>3</sub> not considered sufficient to justify recommendation of a HBOEL but the current OELs of 10 mg/m<sup>3</sup> for inhalable dust and 5 mg/m<sup>3</sup> for respirable dust are retained.</p> <p>Summary of data:</p> <p>Human data:</p> <ul style="list-style-type: none"> <li>Increased incidence of chronic bronchitis has been reported from combined effect of MgCO<sub>3</sub> dust in mines and MgO dust in the environment</li> <li>Symptoms of exposure reported in MgCO<sub>3</sub> workers include increase in occurrence of duodenal and gastric ulcers, pulmonary emphysema, nasal and ocular mucus inflammation, fatigue, headache and impairment of upper airways and hearing.</li> </ul> <p>Animal data:</p> <ul style="list-style-type: none"> <li>Not irritating in rabbits</li> <li>Introduction of 1 mL of 7.5% suspension (75 mg MgCO<sub>3</sub>) directly to the trachea in rats caused intense acute inflammatory reactions</li> <li>Inhibited carcinogenicity of nickel sub-sulphide in rats; mechanism of action unknown</li> <li>Negative result in gene mutation assay.</li> </ul>		

### Secondary source reports relied upon

Source	Year	Additional information
ECHA	✓ 2018	<ul style="list-style-type: none"> <li>LD<sub>50</sub>: &gt;2,000 mg/kg bw (rats, oral)</li> <li>Inhalation not considered likely route of exposure as always prepared and used as a suspension</li> <li>Dermal toxicity and skin sensitisation unlikely</li> <li>Considered non-irritating and not corrosive to skin</li> <li>Non-irritating to eyes.</li> </ul>

## Carcinogenicity — non-threshold based genotoxic carcinogens

Is the chemical mutagenic? No

**The chemical is not a non-threshold based genotoxic carcinogen.**

## Notations

Source	Notations
SWA	NA
HCIS	NA
NICNAS	NA
EU Annex	NA
ECHA	NA
ACGIH	NA
DFG	NA
SCOEL	NA
HCOTN	NA
IARC	NA
US NIOSH	NA

NA = not applicable (a recommendation has not been made by this Agency); — = the Agency has assessed available data for this chemical but has not recommended any notations

## Skin notation assessment

Insufficient data to assign a skin notation.

## IDLH

Is there a suitable IDLH value available? No

## Additional information

Molecular weight:	84.31
Conversion factors at 25°C and 101.3 kPa:	1 ppm = Number mg/m <sup>3</sup> ; 1 mg/m <sup>3</sup> = Number ppm
This chemical is used as a pesticide:	<input type="checkbox"/>
This chemical is a biological product:	<input type="checkbox"/>
This chemical is a by-product of a process:	<input type="checkbox"/>
A biological exposure index has been recommended by these agencies:	<input type="checkbox"/> ACGIH <input type="checkbox"/> DFG <input type="checkbox"/> SCOEL

## Workplace exposure standard history

Year	Standard
<a href="#">Click here to enter year</a>	

## References

European Chemicals Agency (ECHA) (2018) Magnesium carbonate - REACH assessment

Health Council of the Netherlands (HCOTN) (2003) Magnesium carbonate. Health-based Reassessment of Administrative Occupational Exposure Limits. The Hague: Health Council of the Netherlands; publication no. 2000/15OSH/084.

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